

Donut Current Transformers



UL File # E93779

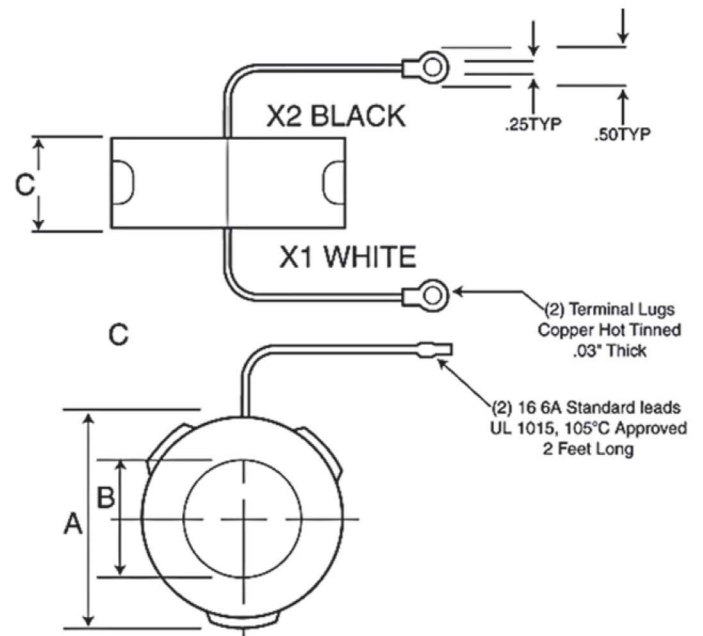
- Meets A.S.A C57.13 Standard
- Molded from impact and abrasive resistance black nylon for rugged construction

| Catalog Number | Turns Ratio | Accuracy For 2 VA Burden |
|----------------|-------------|--------------------------|
| 01293 | 10:1 | 2% |
| 01306 | 15:1 | 2% |
| 01297 | 20:1 | 1% |
| 01298 | 30:1 | 1% |
| 01299 | 40:1 | 1% |
| 01313 | 50:1 | .8% |
| 01300 | 60:1 | .6% |
| 01305 | 80:1 | .5% |
| 01301 | 100:1 | .5% |
| 02303 | 120:1 | .5% |
| 02459 | 150:1 | .3% |
| 02304 | 200:1 | .3% |

Ordering Information

| Ampere | | Turns Ratio | Catalog Number | Dimensions | | |
|---------|-----------|-------------|----------------|------------|-------|---|
| Primary | Secondary | | | A | B | C |
| 50 | 5 | 10:1 | 3.56" | 1.56" | 1.10" | |
| 75 | 5 | 15:1 | | | | |
| 100 | 5 | 20:1 | | | | |
| 150 | 5 | 30:1 | 3.56" | 2.06" | 1.10" | |
| 200 | 5 | 40:1 | | | | |
| 250 | 5 | 50:1 | | | | |
| 300 | 5 | 60:1 | | | | |
| 400 | 5 | 80:1 | | | | |
| 500 | 5 | 100:1 | | | | |
| 600 | 5 | 120:1 | | | | |
| 750 | 5 | 150:1 | 4.50" | 3.00" | 1.09" | |
| 1000 | 5 | 200:1 | | | | |

Dimensions



Donut Current Transformer Wrapping Information

Primary Turn Ratio Modification

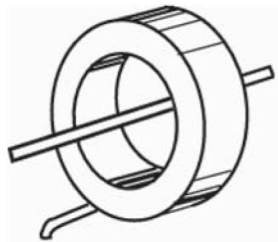
Formula: $K_a = K_n \times N_n / N_a$

Where: K_a = Actual Transformer Ratio
 K_n = Nameplate Transformer Ratio
 N_a = Actual Number of Primary Turns
 N_n = Nameplate Number of Primary Turns

The ratio of the current transformer can be modified by adding more primary turns to the transformer. By adding primary turns, the current required to maintain five amps on the secondary is reduced.

Example: A 100:5 current transformer designed for one primary turn.

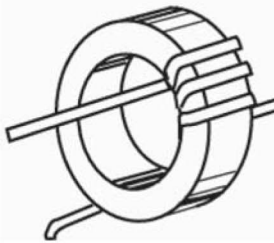
| 1 Primary Turn | |
|-----------------|--------------|
| Nameplate Ratio | Actual Ratio |
| 100:5 | 100:5 |



| 2 Primary Turns | |
|-----------------|--------------|
| Nameplate Ratio | Actual Ratio |
| 100:5 | 50:5 |



| 4 Primary Turns | |
|-----------------|--------------|
| Nameplate Ratio | Actual Ratio |
| 100:5 | 25:5 |



Primary Turn Ratio Modification

Formula: $\frac{I_p}{I_s} = \frac{N_s}{N_p}$

Where: I_p - Primary Current
 I_s - Secondary Current
 N_p - Number of Primary Turns
 N_s - Number of Secondary Turns

Example: A 300:5 Current Transformer.
 $\frac{300p}{5s} = \frac{60s}{1p}$

(In practicality one turn is dropped from the secondary as a ratio correction factor.)

The ratio of the current transformer can be modified by altering the number of secondary turns by forward or backwinding the secondary lead through the window of the current transformer. By adding secondary turns, the same primary current will result in a decrease in secondary output. By subtracting turns, the same primary current will result in greater secondary output.

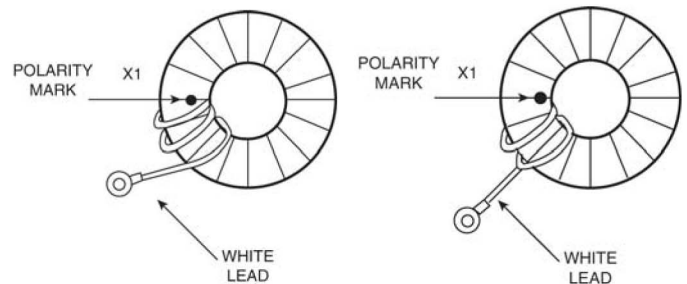
Again using the 300:5 example adding five secondary turns will require 325 amps on the primary to maintain the 5 amp secondary output or

$$\frac{325p}{5s} = \frac{65s}{1p}$$

Deducting 5 secondary turns will only require 275 amps on the primary to maintain the 5 amp secondary output or

$$\frac{275p}{5s} = \frac{65s}{1p}$$

The above ratio modifications are achieved in the following manner:



Donut Current Transformer Wire Length Table

As the distance between the transformer and the meter increases, the signal intensity falls.

For all of the current transformers the maximum distance is determined by its VA burden and also the VA burden of the meter being used.

Here is a table of the maximum recommended wire length for all of our current transformers using the recommended 16 gauge copper wire.

| Catalog Number | CT Ratio | Burden VA | Analog (.2 VA) | Digital (1 VA) |
|----------------|----------|-----------|----------------|----------------|
| 01293 | 50 :5 | 2 VA | 9 FT. | 5 FT. |
| 01306 | 75 :5 | 2 VA | 9 FT. | 5 FT. |
| 01297 | 100 :5 | 2 VA | 9 FT. | 5 FT. |
| 01298 | 150 :5 | 2 VA | 9 FT. | 5 FT. |
| 01299 | 200 :5 | 2 VA | 9 FT. | 5 FT. |
| 01313 | 250 :5 | 2 VA | 9 FT. | 5 FT. |
| 01300 | 300 :5 | 2 VA | 9 FT. | 5 FT. |
| 01305 | 400 :5 | 2 VA | 9 FT. | 5 FT. |
| 01301 | 500 :5 | 2 VA | 9 FT. | 5 FT. |
| 02303 | 600 :5 | 2 VA | 9 FT. | 5 FT. |
| 02459 | 750 :5 | 2 VA | 9 FT. | 5 FT. |
| 02304 | 1000 :5 | 2 VA | 9 FT. | 5 FT. |
| 37020 | 100 :5 | 2 VA | 9 FT. | 5 FT. |
| 37021 | 150 :5 | 5 VA | 24 FT. | 20 FT. |
| 37022 | 200 :5 | 5 VA | 24 FT. | 20 FT. |
| 37023 | 300 :5 | 12.5 VA | 61 FT. | 57 FT. |
| 37024 | 500 :5 | 20 VA | 98 FT. | 95 FT. |
| 37025 | 1000 :5 | 25 VA | 123 FT. | 119 FT. |

Note:

A different set up using model 186 CT can achieve a greater distance up to 500 ft. Call Simpson Technical Support for the details.